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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,895	02/21/2002	Gereon Vogtmeier	DE010037	3932

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER

PATEL, SHEFALI D

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/081,895

Applicant(s)

VOGTMEIER ET AL.

Examiner

Shefali D. Patel

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment was filed on June 24, 2005.
2. Claim 2 has been cancelled; claims 11-13 are newly added.
3. Claims 1 and 3-13 are pending in this application.
4. Amendment to Figure 1 is accepted.
5. Amendment to the specification on page 2 is accepted as "claim 1" and "claim 7" is replaced by its language from claim 1 and claim 7.

Response to Arguments

6. Applicant's arguments filed on June 24, 2005 (Remarks on pages 8-9) have been fully considered but they are not persuasive.

Applicants' argue on page 9 stating that

"Marshall does not disclose or suggest a radiation sensor in which the chip having a substantially uniform so that temperature sensed by said temperature sensor corresponds to the temperature of the entire radiation sensor chip enabling direct and accurate determination of the temperature at the radiation sensor."

The examiner disagrees.

Marshall discloses a radiation sensor, 10 (sensor array 102 in Fig. 1A and at col. 6 line 64), the detector described in Figure 12, col. 21, and the temperature sensor 325 in Fig. 1A, col. 6 line 62 and col. 7 lines 1-5. As disclosed at col. 6 lines 50-54, the temperature sensor is coupled with (integrated on) the processing circuitry 108 and the radiation sensor array 102. This temperature sensor yields the temperature of the radiation sensor that is proportional (i.e., accurate and direct) to a temperature of the radiation sensor array 102 as disclosed by Marshall at col. 6 lines 61-64.

Claim Objections

7. Claims 10 and 12 is objected to because of the following informalities:
- a. Claim 10 line 2 recites "claim1". This ought to be "claim 1". Note, there is not space between claim and 1.
 - b. Claims 12 lines 1-2 on page 6 is not clear. The claim recites "...said evaluation unit can address has an address from said on of said output signals..." This ought to be re-written in a better form.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:
- The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
9. Claims 1 and 3-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
10. Claim 1 recites the limitation "said chip" in lines 12-13 of claim 1. There is insufficient antecedent basis for this limitation in the claim.

Dependent claims 3-13 are rejected for the same reason as claim 1.

11. Claims 7-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 7 (line 3) and 10 (line 4), the phrase "notably" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Dependent claims 8-9 are rejected for the same reason as claim 7.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1, 3 and 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Marshall et al. (hereinafter, "Marshall") (US 6,515,285).

With regard to claim 1 Marshall discloses a radiation sensor (10) (sensor array 102 in Fig. 1A and at col. 6 line 64; the detector is also described in Figure 12, col. 21) of an integrated type which is provided with at least one light-sensitive and/or X-ray-sensitive sensor element (11) (the sensory array has sensor elements set in rows/columns) whose output signal indicates the amount of radiation absorbed by the sensor element (col. 22 lines 31-37), and with at least one temperature sensor (12, 12a, 12b) whose output signal indicates the temperature prevailing at the temperature sensor (see the temperature sensor 325 in Fig. 1A, col. 6 line 62 and col. 7 lines 1-5) and also with at least one further sensor element (12) which is sensitive to a physical quantity other than that where to the light-sensitive and/or X-ray-sensitive sensor element (11) is sensitive, all sensor elements (11, 12) delivering similar output signals and being connectable to an evaluation unit (13) as similar components (Marshall teaches the sensor elements deliver similar output and connected to a unit as seen in Fig. 1A. See, also Fig. 1D the controller and processor at 114 and 108, respectively) wherein said temperature sensor is integrated on said chip of said radiation sensor, said chip having a substantially uniform temperature distribution so that temperature sensed by said temperature sensor corresponds to the temperature of the entire radiation sensor chip enabling direct and accurate determination of the temperature at the radiation sensor (As disclosed at col. 6 lines 50-54, the temperature sensor is coupled with (integrated on) the processing circuitry 108 and the

Art Unit: 2621

radiation sensor array 102. This temperature sensor yields the temperature of the radiation sensor that is proportional (i.e., accurate and direct) to a temperature of the radiation sensor array 102 as disclosed by Marshall at col. 6 lines 61-64).

With regard to **claim 3** Marshall disclosed that the sensor elements are arranged in the form of a matrix (the radiation sensor array 102 in Marshall is in the form of matrix (i.e., columns/rows), see col. 12 lines 7-26).

Claim 10 recites identical features as claim 1 except claim 10 is an apparatus claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 10.

With regard to **claim 11** Marshall discloses evaluation unit which does not differentiate whether it reads from a one of said output signals of said sensor elements such as light sensitive and/or x-ray sensitive element or an output signal from said further sensitive element (See Figure 2 and 3 which describes Figure 1 in more details of the processor 102 and 108, respectively.)

With regard to **claim 12** Marshall discloses address from output signals that is read by evaluation unit as seen in Figure 2 and 3, col. 12 lines 7-60.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall et al. (hereinafter, "Marshall") (US 6,515,285) in view of Shih et al. (hereinafter, "Shih") (US 6,297,671).

With regard to **claim 4** Marshall discloses a radiation sensor along with temperature sensor(s) as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference.

Art Unit: 2621

Marshall does not expressly disclose a radiation sensor, in that it is provided with a temperature sensor (12a, 12b) which includes a current mirror with two paths (T3-T5, T4-T6), a respective bipolar transistor (T1, T2) being provided in each of the two paths, the base of said bipolar transistor being short-circuited to the collector, the surface areas of said bipolar transistors being different and the current (I) in the current paths being approximately proportional to the temperature of the bipolar transistors.

Shih discloses (Figure 2) a current mirror with two paths (T3-T5, T4-T6) (Shih: 201-203, 205-207), a respective bipolar transistor (T1, T2) (Shih: 215, 217) being provided in each of the two paths, the base of said bipolar transistor being short-circuited to the collector (the collector in Shih's Figure 2 is not labeled but is represented by a GND symbol beneath the bipolar transistors 215 and 217 connecting them), the surface areas of said bipolar transistors being different (see, col. 3 lines 36-41 for surface area that are multiple of 1 and 8 of the bipolar transistors 215 and 217) and the current (I) in the current paths being approximately proportional to the temperature of the bipolar transistors (see, col. 3 lines 41-55).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Shih with Marshall. The motivation for doing so is to produce stable reference voltages VBNDREF and VBIAS based on physical properties of a PN junction of a bipolar transistor as suggested by Shih at col. 2 lines 55-58. Therefore, it would have been obvious to combine Shih with Marshall to obtain the invention as specified in claim 4.

16. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall et al. (hereinafter, "Marshall") (US 6,515,285) in view of Shih et al. (hereinafter, "Shih") (US 6,297,671) as applied to claims 4 above, and further in view of Kato (US 5,557,194).

With regard to **claim 5** Marshall discloses a radiation sensor as disclosed above in claim 4 and the arguments are not repeated herein, but are incorporated by reference. Neither Marshall nor Shih expressly disclose a sensor characterized in that the current (I) in the current paths is coupled out as an

Art Unit: 2621

output current (Out) via a further current mirror (T7). Kato discloses this as seen in Fig. 2. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Marshall, Shih and Kato. The motivation for doing so is to have the reference current that has a positive temperature coefficient and therefore, is increased when the temperature rises. Therefore, it would have been obvious to combine Marshall, Shih and Kato to obtain the invention as specified in claim 5.

17. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall et al. (hereinafter, "Marshall") (US 6,515,285) in view of Shih et al. (hereinafter, "Shih") (US 6,297,671) as applied to claims 4 above, and further in view of Nagumo (US 6,028,472).

With regard to claim 6 Marshall discloses a radiation sensor as disclosed above in claim 4 and the arguments are not repeated herein, but are incorporated by reference. Note, Marshall discloses radiation sensor being part of a radiation detector (at col. 21 lines 55-67 where the detector is disclosed with reference to the processing circuitry 108 as seen in Figure 1A and 12). Neither Marshall nor Shih expressly disclose a sensor characterized in that the difference between the emitter-base voltages of the bipolar transistors (T1, T2) is determined by a coupling out circuit (A) so as to be delivered as an output voltage (Vout). Nagumo discloses this as seen in Fig. 33 and col. 24 lines 16-45. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Marshall, Shih and Nagumo. The motivation for doing so is to determine the difference between the bipolar transistors. Therefore, it would have been obvious to combine Marshall, Shih and Nagumo to obtain the invention as specified in claim 6.

Art Unit: 2621

18. Claims 7-9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall et al. (hereinafter, "Marshall") (US 6,515,285) in view of Gordon et al. (hereinafter, "Gordon") (US 6,256,404).

With regard to **claim 7** Marshall discloses a radiation sensor along with temperature sensor(s) as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Marshall does not expressly disclose a radiation sensor for a computer tomography (CT). Gordon discloses a radiation sensor for performing CT scans at col. 9 lines 27-28, 41-43; col. 11 line 61 to col. 12 line 26. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gordon with Marshall. The motivation for doing so is to provide an object's atomic number and density as disclosed at col.9 lines 63 to col. 10 lines 1-3. Therefore, it would have been obvious to combine Gordon with Marshall to obtain the invention as specified in claim 7.

With regard to **claim 8** Marshall discloses the arrangement in order to correct the output signal of the array at col. 12 lines 38-47.

With regard to **claim 9** Marshall discloses making a diagnosis concerning faults and/or ageing of the radiation sensor (col. 12 lines 49-59).

With regard to **claim 13** Gordon discloses providing a diagnosis of an operating condition of said radiation sensor based on a measured temperature condition at col. 12 line 66 to col. 13 lines 1-8.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2621

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

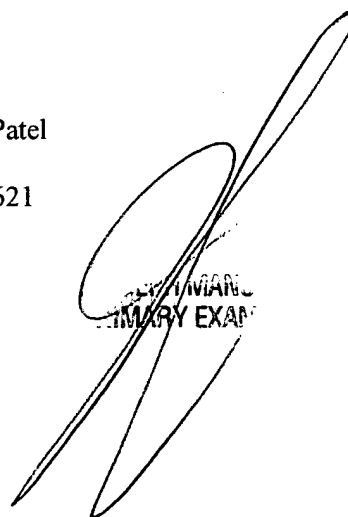
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D. Patel whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shefali D Patel
Examiner
Art Unit 2621

September 16, 2005



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